

ABSTRACT OF THE DISCLOSURE

An organic-inorganic hybrid film is deposited on a substrate by introducing, into a vacuum chamber, a gas mixture of a silicon alkoxide and an organic compound and generating a plasma derived
5 from the gas mixture. Then, a hydrogen plasma process is performed with respect to the organic-inorganic hybrid film by introducing, into the vacuum chamber, a gas containing a reducing gas and generating a plasma derived from the gas. As a result, an organic component in the organic-inorganic hybrid film eliminates
10 therefrom and numerous fine holes are formed in hollow portions from which the organic component has eliminated, whereby a porous film composed of the organic-inorganic hybrid film is obtained.